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The Efficacy of Aftercare for Adolescents with Alcohol Use Disorders: A Randomized Controlled Study

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Abstract

Objective—Relapse rates for treated adolescents with alcohol use disorders (AUD) amount to approximately 60% at 3–6 month post treatment completion. This randomized controlled study tested the hypothesis that active aftercare might maintain treatment gains better than no-active aftercare (NA).

Method—A total of 177 adolescents, 13–18 years of age, diagnosed with DSM-IV AUD, participated in nine weekly Cognitive Behavioral Therapy group sessions in an outpatient setting. The 144 treatment completers were randomized into a 5-session In-Person (IP), 5-session Brief Telephone (BT) or NA condition. Three alcohol use variables were the main outcome measures for 130 aftercare completers.

Results—At end of aftercare, the likelihood of relapse increased significantly compared to end of treatment outcomes. The likelihood of relapse for youth in NA, however, increased significantly more for youth in combined Active Aftercare (AA) conditions ($p=.008$). This effect was driven primarily by a significant gender-by-Active Aftercare interaction: girls showed no significant relapse under AA, but did under NA. Youth enrolled in AA also showed significantly fewer drinking days ($p=.044$) and fewer heavy drinking days ($p=.035$) per month relative to NA.

Conclusion—In general, Active Aftercare interventions showed certain efficacy in slowing the expected post-treatment relapse process for alcohol use, with maintenance of treatment gains only for girls. Frequency of interventions, dose-response, duration of aftercare phase and mediators of behavior change should be further examined in order to optimize aftercare for youth with AUD.

Keywords

Adolescents; alcohol use disorders; aftercare; Continuing care; Treatment by telephone

The volume of research on psychosocial treatments for adolescent alcohol and other substance use disorders (AOSUD) increased significantly since the mid 1990s.^{1–2} Yet effective treatment and aftercare in outpatient programs continue to pose significant public health challenges.^{3–5}

A review of the literature of the 1990s reported the average rate of sustained abstinence among treated youth to be 38% (range, 30–55%) at six months and 32% at 12 months (R: 14–47%).⁶ About 60% of adolescents continued to vacillate in and out of recovery three months after discharge from outpatient treatment programs,^{7–10} stressing the need for relapse prevention. There is growing consensus that AOSUD is a chronic relapsing disorder¹¹ requiring a

continuum of care including aftercare, interchangeably referred to in the literature as continuing care.^{12–14} The American Society of Addiction Medicine (ASAM) defined Continuing Care (CC) as, “the provision of a treatment plan and organizational structure that will ensure that a patient receives whatever kind of care he or she needs at the time. Thus, the CC program is flexible and tailored to the shifting needs of the patient’s level of readiness to change.”¹⁵

Aftercare Studies

A review examining the relationship between adults’ participation in CC and substance use outcomes in varied settings, including outpatient clinics, residential treatments and inpatient followed immediately by outpatient services, generated mixed results.¹⁶ In four studies those with more intensive CC did significantly better than those with none or some CC, while the remaining ten studies showed little or no difference between conditions. The best single predictor of positive outcomes at one-year was length of aftercare attendance. Greater attendance during the first three months of aftercare was significantly related to more days abstinent during that period. Aftercare was associated with enhanced maintenance of treatment gains on proximal outcomes (e.g., self efficacy, readiness to change).¹⁷ These findings suggest that a possible mechanism for the relationship between aftercare and ultimate outcomes is the maintenance of during-treatment proximal outcome gains afforded by CC.

Models of ongoing monitoring and early post-treatment intervention include components such as: (a) proactively tracking patients and providing regular checkups; (b) screening patients for early evidence of problems; (c) motivating people to maintain or make changes including returning to treatment; (d) assistance negotiating access to additional formal care; and (e) an emphasis on early formal re-intervention when problems do arise.¹⁸ Finally, McKay and colleagues,¹⁹ reported on the effectiveness of a telephone, versus face-to-face, intervention for adults with mild to moderate severity of cocaine and alcohol use disorders in a matching aftercare study.

Only one aftercare study examining the efficacy of aftercare interventions in adolescents with substance use disorders has been published.²⁰ Adolescents discharged from residential treatment programs and referred to CC services were significantly more likely to initiate and receive additional services when assigned to an assertive continuing care (ACC) protocol. Adolescents assigned to an ACC protocol also showed a higher rate of abstinence from marijuana at the three-month follow-up and a reduction in their alcohol use. The ACC provided case management, home visits, a and community reinforcement approach as contrasted to usual CC, including outpatient services and encouragement to attend self-help groups. Motivated adolescents were more likely to remain abstinent during aftercare and to show improved engagement, (i.e., making initial contact with the assigned agency).²¹ Finding effective outpatient aftercare methods for adolescents is important because the majority (80%) of adolescents with AOSUD are being treated in outpatient programs,²² and the literature provides little guidance regarding aftercare.

The objectives of this study were to evaluate the following hypotheses: (1) aftercare may maintain or improve treatment outcomes; (2) combined active aftercare is associated with better outcomes than a no-active aftercare condition; and (3) a brief telephone intervention might be as efficacious in maintaining treatment gains as an in-person intervention for adolescents with mild to moderate severity of Alcohol Use Disorder (AUD).

Methods

Participants

A total of 294 referred adolescents, 13 to 18 years of age, were screened. Of those adolescents screened, 235 met eligibility criteria; 190 signed consent forms, 179 completed intake, and 177 enrolled in the treatment phase. Eligibility criteria included (a) meeting current DSM-IV diagnosis of AUD;²³ (b) willing to accept aftercare and random assignment to aftercare conditions; (c) able to comprehend and read English at a fifth-grade level; (d) participant and a family member responsible for providing locator information; and (e) not planning to move out of state for 12 months. Adolescents were excluded if they (a) met any substance dependence criteria other than for nicotine or marijuana; (b) had a lifetime diagnosis of schizophrenia; (c) reported suicidal ideation with a plan, suicidal behavior, or self-injurious behavior in the last 30 days; or (d) had any current medical condition compromising their ability to regularly participate in the study.

Informed assent and consent approved by the Institutional Review Board of the University of Connecticut Health Center were obtained from each subject and respective guardian.

Treatment completers numbered 146, and 144 were randomized to one of three Aftercare conditions. Of those enrolled, 32.6% were female, 13.2% Latino, 4.2% African American, and 3.5% Bi-racial/other. The average age was 15.9 (SD = 1.2, R: 13–18). Aftercare completers were 85.4% (123) of these youth, with 121 youth available at end of aftercare. Table 1 delineates the reasons for dropping out of both treatment and aftercare. The descriptive statistics of these 121 youth, both overall, and as a function of experimental condition, are noted in Table 2.

Procedures

This was a prospective, randomized, controlled study with an intent-to-treat design and analysis.²⁴ It was comprised of three phases: treatment, aftercare, and follow-up. The first phase consisted of nine weekly, Cognitive Behavioral Therapy (CBT) group sessions.²⁵ Treatment completion was defined as attending at least one of the last two sessions and completing the associated assessment battery for these sessions. In the second phase, treatment completers only were randomized to one of three aftercare conditions: 1) In-Person (IP), 2) Brief Telephone (BT), or 3) No-Active Aftercare (NA). Urn randomization procedures²⁶ were used only to equalize assignment to condition. Both the IP and the BT conditions included one session of functional analysis, defined as an analysis of the factors in the environment determining the change in the frequency of occurrence of the behavior²⁷ (i.e., alcohol and drug seeking and using behavior) that may lead to relapse. This was followed by four, manual-guided integrated Motivational Enhancement Therapy (MET) and CBT sessions.^{4,28} The contents of the BT and IP interventions were identical, both having been carried out over a three-month period, the difference being dosage (i.e., 50 minutes for IP versus 12–15 minutes for BT). The same therapists provided treatment and aftercare. A favorable feasibility and acceptability of the telephone intervention for therapists and adolescents alike was reported.²⁹

Efforts were made to reassess all study participants including noncompleters at end of treatment (ET), end of aftercare (EA), and at 3-, 6-, and 12-month post-scheduled aftercare completion follow-ups. The present analyses examine the changes occurring only from ET to EA.

Measures

Demographic measures—Youth gender, age, and ethnicity were used as predictors in the analysis. Due to the relative low percentage of minorities the ethnicity variable was coded as White versus non-White.

Diagnostic Interview Scale for Children (DISC-IV)—³⁰ The DISC-IV includes the most common child/adolescent mental disorders and covers DSM-IV diagnostic criteria. We used the Voice-DISC version as a self-administered version³¹ at baseline (BL), and, assessed both (1) internalizing and (2) externalizing disorders. If the DISC-IV revealed a positive or intermediate diagnosis for any one of the depressive disorders: major depression, dysthymic disorder, or manic depression; or any anxiety disorder, the youth was then coded positive for the presence of any internalizing disorder. Youth were coded analogously for the presence of any externalizing disorders: conduct disorder, oppositional defiant disorder, or attention-deficit/hyperactivity disorder.

Marijuana use status—Urinalyses utilized in the present study were done at baseline, randomly during treatment, end of treatment and end of aftercare.. The substance panel assessed included cannabis, cocaine, opiates, oxycontin, amphetamines, MDMA (ecstasy), and PCP. Only one subject used any drug other than marijuana, which was used at Baseline by 145 of 177 (81.9%). At each urinalysis, youth were asked to report any alcohol and drug use. Self-reports by adolescents have been found to be highly reliable,³² in particular, when a legal contingency is not pending.³³ If a youth was found to be positive either at urinalysis or by self-report, it was coded as an instance of drug use. Finally, for use as a predictor in the analyses, youth who used any drugs at baseline were coded as positive for previous substance use.

Alcohol use status—In our previous studies a breathalyzer test conducted during a midweek afternoon session was not found useful because most youth drink only during weekends. Detection of alcohol use based on analysis of saliva, hair and skin, has not yet reached the necessary quality for approved wide use. Alcohol use was therefore based only on self-report. Using self-reports, we constructed another measure in order to control for post-treatment differences that might have still existed after randomization to Aftercare condition. The last two dichotomous alcohol use status self-reports were averaged from as far back as the fifth of nine assessment sessions (i.e., in that absentee rates varied for youth). This variable, labeled Alcohol Use covariate, was used as a three-level (i.e., Reported Use: None, One, or Both Occasions) covariate in the frequency analysis. This measure was also not significantly skewed ($t[120] = 1.10$, $p[2-t] > .20$ [ns]).

Alcohol Consumption Questionnaire (ACQ)—³⁴ The ACQ questionnaire was developed to collect subjects' reports on quantity and frequency of alcohol consumption: 1) Number of Drinking Days per Month (ND), and 2) Number of Heavy Drinking Days per Month (NHD). This measure was collected at End of Aftercare. Since both of the alcohol frequency measures were positively skewed, the measures were log transformed, successfully reducing all skewness (Drinking Frequency: $t[120] = 0.95$, $p = .45$; Heavy Drinking Frequency: $t[120] = 0.38$, $p = .80$).

Attendance—The number of active aftercare sessions attended was used only for the In-Person and the Brief-Telephone contrast.

Analyses

Alcohol abstinence—In order to test whether there was a significant differential change from alcohol use to abstinence, Generalized Estimating Equations (GEE) models³⁵ were constructed. The GEE models examined the differential status change of alcohol use/non-use from End of Treatment to End of Aftercare as a function of demographic, diagnostic, youth attendance/feedback, and Aftercare condition assignment. The GEE procedure allows for changes in the dichotomous measure to be explained as either (1) correlated changes in abstinence rates from pre- to post-test, or (2) as differences in the frequency of those changing from drinking to abstinence versus those relapsing (i.e., changing from abstinence to drinking).

The alcohol use status at the last self-report of the common treatment was used as the first measure, and the self-report at End of Aftercare was used as the second. Two *a priori* contrasts were hypothesized to assess the effects of the three-level Aftercare variable in this and all subsequent analyses: (1) the In-Person (IP) and Brief Telephone (BT) Active Aftercare conditions were hypothesized to collectively show significantly lower relapse rates relative to the No Active Aftercare (NA) condition; and (2) the IP condition might show a differential use status relative to the BT condition. All tests reported are 2-tailed.

Alcohol frequency measures—A multivariate regression analysis was then performed on the two transformed frequency measures collected at End of Aftercare, Number of Drinking Days per Month, and Number of Heavy Drinking Days per Month. In order to covary out residual variance remaining after randomization, we used the three-level alcohol use variable derived from the last two self-reported alcohol abstinence assessments during common treatment. In addition, demographic, diagnostic, youth attendance/feedback, and Aftercare condition assignment were assessed as predictors of frequency of use.

Marijuana abstinence—The GEE models also examined the differential relapse rates of marijuana use from End of Treatment to End of Aftercare as a function of demographic, diagnostic, youth attendance/feedback, and Aftercare condition assignment. The marijuana use status at the last assessment of the common treatment was used as the first measure and End of Aftercare status was the second.

Power—Power calculations show that given a standard Type I error ($\alpha = .05$), standard power ($1 - \beta = .80$), assessment of a medium effect size (Cohen's $d = .5$), and an *a priori* 2-tailed test for the main hypothesis of differences between Active (IP and BT) versus No-Active (NA) Aftercare, a sample size of $n = 64$ per group is needed.³⁶ Given that the sample size for the collective Active Aftercare conditions ($n = 80$) were larger than the No-Active Aftercare condition ($n = 41$), Cohen's geometric average sample size per group is calculated to be $n' = 54.2$. As such, the resultant power for this contrast is 0.73, relatively close to the standard value of 0.80. Conversely, given a power of 0.80, the ability to test a medium effect size of $d = .55$ results for the test of the first contrast: Active versus No-Active. The power for the analysis of a medium effect size between the In-Person versus Brief Telephone, however, was only .60, or, given a power of .80, the ability to test an effect size of $d = .64$, medium-large. The statistical analyses were conducted using SPSS 15.0.0 statistical software.³⁷ Tests of interactions involving the above two contrasts produce the same respective power.

Multicollinearity among predictors—Despite randomizing subjects to experimental conditions, there was a significantly higher proportion of youth with a Substance Use Disorder among those randomized into the two Active Aftercare conditions (24.7%) than among those in the No-Active Aftercare condition (9.8%), $r = -.17$, $p = .047$, $\chi^2(1) = 3.93$.

Results

The means, standard deviations, sample sizes, frequencies and percentages of the predictor variables as well as the subsequently assigned Aftercare condition variable are shown in Table 1 for youth assigned to conditions at End of Treatment and from whom End of Aftercare data were collected.

Change in alcohol use status measure

Overall change—There was a significant decrease in alcohol abstinence rates from End of Treatment (ET: 57.0%) to End of Aftercare (EA: 33.9%; as shown in Table 3), Wald $\chi^2(1) = 16.88$, $p < .001$, such that significantly fewer youth ($n = 12$) changed to abstinence (i.e., changed

status from drinking to abstinent) than changed to drinking (i.e., from abstinent to drinking; $n = 40$).

Gender—There was a significant differential change in abstinence rate as a function of gender, Wald $\chi^2(1) = 2.80$, $p = .008$: While both boys (Wald $\chi^2[1] = 11.61$, $p = .008$) and girls (Wald $\chi^2[1] = 4.94$, $p = .026$) exhibited significant change, males showed larger decreases in abstinence (56.3% ET to 35.0% EA) than girls, with significantly fewer boys changing to abstinence ($n = 5$) than to drinking ($n = 22$). Females, on the other hand, while still showing decreases in abstinence, showed smaller decreases (58.5% to 31.7%), also with significantly fewer girls changing to abstinence ($n = 7$) than to drinking ($n = 18$).

Aftercare—There was a significant differential change in abstinence as a function of Active versus No-Active Aftercare, Wald $\chi^2(1) = 2.80$, $p = .008$, as shown in Table 3. While both Active (Wald $\chi^2(1) = 5.64$, $p = .018$) and Non-Active (Wald $\chi^2(1) = 11.78$, $p < .001$) conditions exhibited significant change, Active condition youth showed smaller decreases in abstinence (53.8% to 38.5%), with significantly fewer youth in the active conditions changed to abstinence ($n = 9$) than to drinking ($n = 22$). Youth in the Non-Active condition, on the other hand, showed larger decreases in abstinence (63.4% to 26.8%), also with significantly fewer youth in the non-active conditions changing to abstinence ($n = 3$) than to drinking ($n = 18$).

Gender by Aftercare—In addition to the above interactions, there was a significant 3-way interaction involving both gender and Aftercare condition (not shown in Tables), such that the Active treatments were differentially more effective for girls. Among boys, for example, there was no significant differential change in abstinence rate as a function of Active versus No-Active Aftercare: Boys in both conditions showed similar decreases in abstinence. Active-Aftercare (58.0% to 36.0%), Wald $\chi^2(1) = 9.00$, $p = .003$, showed significantly fewer boys changed to abstinence ($n = 2$) than to drinking ($n = 13$), while Non-Active Aftercare boys showed a trend toward decreases in abstinence (53.3% to 33.3%), Wald $\chi^2(1) = 3.15$, $p = .076$, with somewhat fewer changing to abstinence ($n = 3$) than to relapse ($n = 9$). Among girls, however, there was a significant differential change in abstinence rate as a function of treatment. Girls in Active Aftercare conditions did not significantly decrease in abstinence (46.7% to 40.0%), Wald $\chi^2(1) = 0.25$, $p = .62$, with similar numbers of girls changing to abstinence ($n = 7$) than to drinking ($n = 9$); this was the least negative status change among all sub-groups. Girls in Non-Active conditions, on the other hand, significantly decreased in abstinence (90.1% to 9.1%), Wald $\chi^2(1) = 10.71$, $p < .001$, such that significantly fewer girls changed to abstinence ($n = 0$) than to drinking ($n = 9$); this was the most negative status change among all sub-groups.

In-Person versus Brief Telephone—Finally, there was no significant differential change for the In-Person versus Brief Telephone condition, nor for any interactions with other predictors involving this contrast.

Alcohol frequency measures

The descriptive statistics of the two alcohol frequency measures are reported in Table 2. Since both of the frequency measures were transformed due to skewness, the back-transformed means and non-symmetrical standard deviations are presented.

The Alcohol Use covariate was significantly correlated with Number of Drinking Days per Month and Number of Heavy Drinking Days per Month at End of Aftercare, and was, therefore, left in the model. As hypothesized, youth in Active Aftercare showed significantly less Number of Drinking Days per Month ($p = .044$) as well as Number of Heavy Drinking Days per Month Use ($p = .035$) relative to No-Active Aftercare (all means and SD's shown in Table 2). There

was no significant difference, however, between the two active aftercare conditions for either measure. No other predictors in the model were seen to be significant.

Change in marijuana use status measure

There was a significant decrease in abstinence of marijuana from End of Treatment (38.0%) to End of Aftercare (32.2%, as shown in Table 3), Wald $\chi^2(1) = 19.57$, $p < .001$, with significantly fewer youth changing from marijuana use to abstinence than from abstinence to use (i.e., relapse). Also there was no significant differential change from End of Treatment to End of Aftercare as a function of Active Aftercare versus No-Active, nor as a function of In-Person versus Brief Telephone condition.

Attendance and Satisfaction—Neither attendance nor satisfaction from assignment to a specific aftercare condition was significantly associated with outcomes.

Discussion

This study provides evidence regarding the relative usefulness of aftercare on outpatient treatment outcomes (i.e., relapse) for adolescents with alcohol use disorders. To put these finding in perspective, it is important to understand that alcohol and substance use increases in youth until they reach their early twenties, at which time young adults manifest moderation or cessation of use.³⁸ The trajectory of increased alcohol use, therefore, compromises the likelihood of favorable response to treatment and increases the odds for relapse during the post-treatment phase. Furthermore, a considerable proportion of youth in treatment may be better considered “continuing users” who did not relapse because they either did not abstain during treatment and/or had no intention to abstain following treatment completion or drop-out.³⁹ Chung and Maisto also emphasize that relapse can be defined either as a discrete outcome (e.g., return to any use, which in this study is a dichotomous variable of abstinence versus use) or process (e.g., return to a problematic pattern of use, in this study the frequency of both days of drinking and days of heavy drinking).

More specifically, the first hypothesis, that aftercare may maintain or improve treatment outcomes, has been partially supported, in particular among girls who showed no significant relapse under combined Active Aftercare conditions. Also supported was hypothesis two, that active aftercare is associated with better outcomes than no-active aftercare: Active Aftercare interventions showed certain efficacy in slowing down the expected post-treatment relapse process for alcohol use. Youth undergoing Active Aftercare also showed significantly fewer drinking days and fewer heavy drinking days per month relative to NA. These positive findings were all seen despite that the likelihood of relapse increased at end of aftercare.

The third hypothesis, which suggested that brief telephone intervention was as efficacious in maintaining treatment gains as an in-person intervention, has been supported by the findings. Our findings are similar to those reported by McKay et al.,¹⁹ that adults with mild to moderate severity of cocaine and alcohol use disorders responded equally well to a telephone intervention as an in-person intervention.

Although the focus of the study was on aftercare outcomes of adolescents with AUD, the vast majority of subjects also used marijuana. Marijuana use increased slightly during aftercare but much less than expected compared to the high relapse rate typically reported in the literature occurring at 3-month post treatment completion.^{6–10} Relapse rate associated with active aftercare, however, was not different from NA.

There is a need to further examine the factors responsible for treatment outcomes of alcohol users with and without concomitant marijuana use. The therapeutic process factors that

promote the maintenance of behavior change, such as response to aftercare, may differ to some extent from those that promote the initiation of change, such as the treatment process.⁴⁰ Next should be an examination of the mediators of abstinence, and the mechanisms of therapeutic processes that comprise successful aftercare. We plan to examine self efficacy,⁴¹ motivation to change during aftercare as well as commitment to abstinence during aftercare, to better understand the outcomes of the aftercare phase.

While this study demonstrates a high level of adherence to aftercare, adherence per se has not been associated with significantly better outcomes. Outcomes of adolescents with alcohol use disorders suggest that a 5-session aftercare intervention during a period of three months post-outpatient treatment completion may not be sufficient to maintain treatment outcomes. Godley et al.²⁰ drew a similar conclusion in their post-residential continuing care study. McKay's⁴² suggestions of the pivotal issues that need to be addressed in the research of CC include defining the goal of continuing care, which can be either relapse prevention and/or harm reduction, that is, limiting the severity of episodes of use if they have occurred. McKay also suggests examining modality and method of service delivery, optimal frequency, dosage and duration of intervention in order to develop an effective continuing care. Based on a recent review of the adult literature, McKay also concluded that CC interventions of one year or longer are more likely to show significant positive effects, and that more structured and intensive CC may be more effective.⁴² In order to obtain better clinical results, therefore, in applying aftercare for youth with AUD, it might be necessary to consider longer periods of aftercare interventions and to investigate dose-response associations between the frequency of interventions with outcome.

The lack of association between outcomes and satisfaction regarding assigned aftercare condition is consistent with other reports that point out that the general belief regarding the importance attributed to patient's satisfaction might be over rated.⁴³

An innovation of this study is the inclusion of a brief telephone intervention.^{4,30} There are, however, several limitations. The main limitation was the oversight that allowed non-identically worded alcohol frequency measures throughout the study. Another limitation of the study is that it is not powered sufficiently to test medium effect size differences between the In-Person and the Brief-Telephone conditions. Nonetheless, the extremely small differences that resulted between these two conditions make this limitation moot. Finally, as in any study of alcohol use, the lack of any biological assessment of actual alcohol use among the youth may undermine the reliability of self-report of alcohol use by youth with conduct disorders.³²⁻³³ The study has a number of strengths that increase confidence in the validity and generalizability of the results, including randomization, a control condition, manualized active aftercare conditions, assessment instruments with good psychometric properties and excellent retention rates in aftercare. It has also been argued that studies that provide aftercare to treatment completers only invite design selection bias.³ We have, nonetheless, followed all participants throughout the study, including the post aftercare follow-up assessments. We intend in future studies to provide continued care to all participants regardless of their treatment completion status as well as consider developing adaptive intervention strategies.⁴⁴

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Table 1

Reasons for Youth Dropping Out of Treatment and of Aftercare

Reasons for Treatment/Aftercare dropout	Treatment		Aftercare	
	n	%	n	%
Refused treatment	11	35.5	6	28.6
Higher level of Treatment (i.e., residential or inpatient)	4	12.9	3	14.3
Moved	3	9.7	3	14.3
Detention	2	6.5	5	23.8
Treatment not needed	2	6.5	0	0.0
Time conflict (with sports)	2	6.5	0	0.0
Jail	2	6.5	2	9.5
Administrative discharge	2	6.5	0	0.0
Attendance (did not attend sessions or in allotted time)	1	3.2	1	4.8
Chose different treatment program	1	3.2	0	0.0
Parents decided treatment not appropriate	1	3.2	0	0.0
Unable to complete aftercare assessments (non-active)	0	0.0	1	4.8
Total	31	100.0	21	100.0

Table 2
End of Aftercare Means, Standard Deviations, Sample Sizes, Frequencies and Percentages of Predictor Variables as a Function of Aftercare Condition (n = 121)

Variables	Total		In-Person (IP)		Brief Telephone		Active Aftercare		No-Active Aftercare	
	M	SD	M	SD	M	SD	M	SD	M	SD
Drinking Days/Month (adjusted)	1.0	0.9,3.5	1.0	0.8,3.5	0.7	0.6,2.5	0.8	0.7,2.9	1.5	1.2,5.1
Heavy Drinking Days/Month (adjusted)	0.8	0.7,3.1	0.8	0.7,2.9	0.6	0.5,2.3	0.6	0.6,2.5	1.3	1.1,4.7
Age (years)	16.0	1.2	16.1	1.0	16.1	1.3	16.1	1.1	15.8	1.2
Sessions Attended During Treatment	6.8	1.4	7.1	1.3	6.8	1.5	6.9	1.4	6.6	1.5
Sessions Attended During Aftercare	4.2	1.0	4.2	1.0	4.2	0.9	4.2	1.0	-	-
Alcohol Use Last 2 Sessions	0.44	0.43	0.38	0.43	0.49	0.44	0.44	0.43	0.44	0.42
		%		%		%		%		%
Gender (% Male)	80	66.1	22	57.9	28	66.7	50	62.5	30	73.2
Ethnicity (% White)	99	81.8	29	76.3	37	88.1	66	82.5	33	80.5
DISC Substance Use Disorder (%)	96	79.3	30	78.9	29	69.0	59	73.8	37	90.2
Abuse or Dependence										
DISC Internalizing Disorder (%)	70	57.9	24	63.2	23	54.8	47	58.8	23	56.1
Intermediate or Positive										
DISC Externalizing Disorder (%)	92	76.0	29	76.3	32	76.2	61	76.3	31	75.6
Intermediate or Positive										

Change in Frequency of Alcohol and Marijuana Use Status from End of Treatment to End of Aftercare as a function of Aftercare condition

Table 3

Subject Group	Total	End of Aftercare			Marijuana			Total
		Use	Alcohol Abstinent	Total	Use	Abstinent	Total	
End of Treatment	Use	n	12	52	61	14	75	
	Abstinent	%	23.1	43.0	81.3	18.7	62.0	
	Total	n	29	69	21	25	46	
<u>Active Aftercare</u>	Use	%	42.0	57.0	45.7	54.3	38.0	
	Abstinent	n	41	121	82	39	121	
	Total	%	33.9	100.0	67.8	32.2	100.0	
End of Treatment	Use	n	9	37	38	8	46	
	Abstinent	%	24.3	46.2	82.6	17.4	57.5	
	Total	n	21	43	13	21	34	
<u>No-Active Aftercare</u>	Use	%	48.8	53.8	38.2	61.8	42.5	
	Abstinent	n	30	80	51	29	80	
	Total	%	37.5	100.0	63.8	36.2	100.0	
End of Treatment	Use	n	3	15	23	6	29	
	Abstinent	%	20.0	36.6	79.3	20.7	70.7	
	Total	n	8	26	8	4	12	
Total	Use	%	30.8	63.4	66.7	33.3	29.3	
	Abstinent	n	11	41	31	10	41	
	Total	%	26.8	100.0	75.6	24.4	100.0	

Note: Percentages are row percentages except for column totals which are column percentages